

I CLAIM:

1. A mixed-gas insufflation system for mixing insufflation gases, comprising:
  - a gas supply providing at least two sources of insufflation gas; and
  - a mixer system including a chamber having at least two inlets and at least one outlet, wherein the at least two inlets of the chamber are in fluid communication with the gas supply, the mixer system for mixing the at least two sources of insufflation gas.
2. The mixed-gas insufflation system of claim 1 wherein the mixer system further comprises a tubing system corresponding to each source of insufflation gas, the tubing system having a first end attached to the source of insufflation gas and a second end attached with an inlet of the at least two inlets of the chamber.
3. The mixed-gas insufflation system of claim 2, further comprising activation means for selecting an insufflation gas to enter the corresponding tubing system.
4. The mixed-gas insufflation system of claim 2, wherein the tubing system further comprises a flow valve to allow the flow of insufflation gas and a metering valve to control the flow of insufflation gas.
5. The mixed-gas insufflation system of claim 1, wherein the chamber further comprises at least one baffle.
6. The mixed-gas insufflation system of claim 5, wherein the chamber further comprises four baffles.

7. The mixed-gas insufflation system of claim 1, wherein the chamber further comprises a plate having a plurality of holes.

8. The mixed-gas insufflation system of claims 1, 5, 6 or 7, wherein the mixing chamber further comprises a fan.

9. The mixed-gas insufflation system of claim 1, wherein the at least two sources of insufflation gas are different from each other.

10. The mixed-gas insufflation system of claim 1, wherein the at least two sources of insufflation gas include oxygen.

11. The mixed-gas insufflation system of claim 1, wherein the mixer system further comprises a sensor for identifying the presence of the insufflating gas associated with the corresponding tubing system.

12. The mixed-gas insufflation system of claim 11, wherein the sensor further comprises a resistor block that senses the assigned ohmic value assigned to the insufflating gas.

13. The mixed-gas insufflation system of claim 11, wherein the sensor further comprises a gas analyzer.

14. The mixed-gas insufflation system of claim 1, wherein the mixer system further comprises at least one dual-capacity tube having an inlet for attachment to at least one outlet of an insufflator;

15. The mixed-gas insufflation system of claim 1, further comprising a multi-output insufflator having:

at least two inputs;

at least two delivery paths attached to the at least two inputs for allowing the flow of insufflation gases from at least two pressurized sources attached to the at least two delivery paths;

a central processing unit for monitoring and controlling the flow of insufflation gas passing through the at least two delivery paths;

at least two output lines attached to the at least two delivery paths;

and

wherein the mixer system is located internal to the multi-output insufflator and along the at least two delivery paths for mixing the insufflation gas.

16. The mixed-gas insufflation system of claims 1 or 15 further comprising a multi-lumen catheter having at least one inlet attached with the at least one output of the chamber and at least one inlet for attachment with a source of liquid.

17. The mixed-gas insufflation system of claims 1 or 15 further comprising a humidification system having at least one inlet attached with the at least one output of the mixing chamber.

18. The mixed-gas insufflation system of claim 1, wherein the chamber further comprises at least one output in fluid communication with a connector for insertion into a surgical site and a catheter having at least one lumen and an outlet for insertion into the surgical site.

19. An insufflator comprising:

at least two inputs, each for supplying a source of insufflating gas;

a mixing chamber in fluid communication with the at least two inputs; the mixing chamber having at least one output;

at least one delivery path attached to the at least one output of the mixing chamber;

a central processing unit electrically connected with the at least one delivery path for monitoring and controlling the flow of insufflation gas passing through the at least one delivery path;

at least one output line attached to the at least one delivery path;  
and

wherein the at least one delivery path and the at least one output line allows for the continuous supply of mixed insufflation gas to a surgical site during a laparoscopic procedure.

20. The insufflator of claim 19 further comprising a multi-output insufflator having at least two delivery paths and at least two output lines each attached to a delivery path, and a mixing chamber having at least two outputs.

21. The insufflator of claim 20 further comprising at least one dual-capacity tube attached to the at least two output lines; and

wherein the at least two delivery paths and the at least one dual-capacity tube allow for the continuous supply of insufflation gases.

22. The insufflator of claim 19 further comprising a multi-lumen catheter having at least one inlet attached with the at least one output of the mixing chamber and at least one inlet for attachment with a source of liquid.

23. The insufflator of claim 19 further comprising a humidification system having at least one inlet attached with the at least one output of the mixing chamber.

24. A mixed-gas insufflation system for mixing insufflation gases, comprising:

a gas supply providing at least two sources of insufflation gas; and  
mixing means in fluid communication with the gas supply, the  
mixing means for mixing the at least two sources of insufflation gas.

25. The mixed-gas insufflation of claim 24 further comprising an insufflator having at least one input, wherein the mixing means are attached with the at least one input.

26. The mixed-gas insufflation of claim 24, wherein the mixing means further comprise sensing means to identify the presence of each of the at least two sources of insufflation gas.

27. The mixed-gas insufflation system of claim 24, further comprising a multi-output insufflator having:

at least two inputs;  
at least two delivery paths attached to the at least two inputs for  
allowing the flow of insufflation gases from at least two pressurized sources  
attached to the at least two delivery paths;  
a central processing unit for monitoring and controlling the flow of  
insufflation gas passing through the at least two delivery paths;  
at least two output lines attached to the at least two delivery paths;  
and

wherein the mixing means are located internal to the multi-output  
insufflator and along the at least two delivery paths.

28. The mixed-gas insufflation system of claim 24 further comprising a multi-lumen catheter having at least one inlet attached with the at least one output of the mixing means and at least one inlet for attachment with a source of liquid.

29. The mixed-gas insufflation system 24 further comprising a humidification system having at least one inlet attached with the at least one output of the mixing means.

30. A method for mixing at least two insufflation gases comprising:  
providing at least two sources of pressurized insufflation gases,  
wherein at least two of the insufflation gases are different from each other;  
delivering insufflation gas from each source into a tubing system;  
controlling the flow and pressure of each insufflation gas within the tubing system;  
delivering in parallel each insufflation gas into a mixing chamber;  
mixing the at least two insufflation gases within the mixing chamber; and  
expelling the mixed insufflation gas from the mixing chamber through at least one outlet.

31. The method of claim 30 wherein expelling the mixed insufflation gas from the mixing chamber further comprises delivering the mixed insufflation gas through at least one delivery path in an insufflator.

32. The method of claim 30 wherein expelling the mixed insufflation gas from the mixing chamber further comprises supplying the insufflation gas to at least one inlet of a catheter.

33. The method of claim 32 further comprising:  
supplying a liquid medicine to at least one inlet of the catheter;  
aerosolizing with the medicine with the insufflation gas; and  
delivering the aerosolized medicine to a surgical site.
34. The method of claim 30, wherein controlling the flow and pressure of each insufflation gas within the tubing system further comprises:  
delivering each insufflation gas to at least two inlets of an insufflator; and  
delivering each insufflation gas through at least two delivery paths, wherein each delivery path is in fluid communication with an inlet.
35. The method of claim 30, wherein mixing the at least two insufflation gases within the mixing chamber further comprises:  
creating turbulence within the mixing chamber by passing the at least two insufflation gases around at least one baffle.
36. The method of claim 30, wherein mixing the at least two insufflation gases within the mixing chamber further comprises:  
creating turbulence within the mixing chamber by passing the at least two insufflation gases through and around a plate with holes.
37. The method of claims 30, 35 or 36, wherein mixing the at least two insufflation gases within the mixing chamber further comprises:  
creating turbulence within the mixing chamber by passing the at least two insufflation gases through a fan.